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Volume Eight

Number Four

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# SCHOOL OF MINES AND METALLURGY

UNIVERSITY OF MISSOURI

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## BULLETIN

OCTOBER, 1916

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JAN 17 1917

## REGISTER OF GRADUATES

ROLLA, MISSOURI

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# SCHOOL OF MINES AND METALLURGY

UNIVERSITY OF MISSOURI

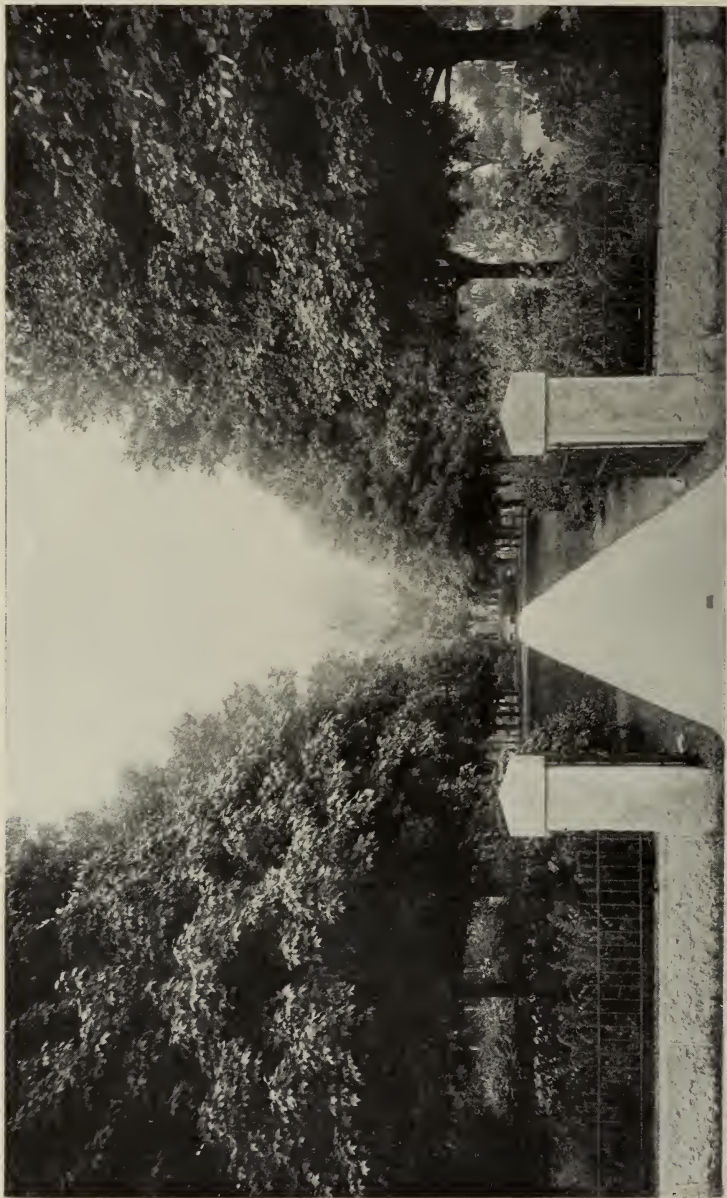


REGISTER OF GRADUATES



ROLLA, MISSOURI

1916



SOUTH GATE—CAMPUS VIEW

## BOARD OF CURATORS

---

S. L. BAYSINGER.....	<i>Rolla, Mo.</i>
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ALBERT D. NORTONI .....	<i>St. Louis, Mo.</i>
J. C. PARRISH .....	<i>Vandalia, Mo.</i>
C. B. ROLLINS .....	<i>Columbia, Mo.</i>
SAM SPARROW .....	<i>Kansas City, Mo.</i>
G. L. ZWICK .....	<i>St. Joseph, Mo.</i>

## EXECUTIVE COMMITTEE OF THE SCHOOL OF MINES AND METALLURGY

---

S. L. BAYSINGER .....	<i>Rolla.</i>
ALBERT D. NORTONI .....	<i>St. Louis.</i>
G. L. ZWICK .....	<i>St. Joseph.</i>

## OFFICERS OF THE COMMITTEE

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S. L. BAYSINGER .....	<i>Chairman.</i>
G. L. ZWICK .....	<i>Vice-Chairman.</i>
EDW. KAHLBAUM .....	<i>Secretary.</i>
C. M. KNAPP .....	<i>Treasurer.</i>





CAMPUS VIEW

## FACULTY

ALBERT ROSS HILL,

President of the University.

A. B., Dalhousie University, 1892; Ph. D., Cornell University, 1895; LL. D., University of South Carolina, 1905; Dalhousie University, 1908; Westminster College, 1909; Washington University, 1915; Lafayette College, 1915.

AUSTIN LEE McRAE,

Director and Professor of Physics.

B. S., University of Georgia, 1881; S. D., Harvard University 1886.

JOSEPH WAYNE BARLEY,

Professor of English and Modern Languages.

A. B., 1897; A. M., 1905; William Jewell College. Ph. D., University of Pennsylvania, 1911.

DURWARD COPELAND,

Professor of Metallurgy.

S. B., Massachusetts Institute of Technology, 1903; Met. E., School of Mines, 1915.

GUY HENRY COX,

Professor of Geology and Mineralogy.

B. S., in General Science, Northwestern University, 1905; M. A., University of Wisconsin, 1908; Ph. D., University of Wisconsin, 1911; E. M., School of Mines, 1914.

GEORGE REINALD DEAN,

Professor of Mathematics.

C. E., School of Mines, 1890; B. S. in Mathematics and Physics, School of Mines, 1891.

HAROLD SHIELDS DICKERSON,

Professor of Mechanical Engineering.

B. S., University of Michigan, 1905; B. S., Purdue University; M. E., Purdue University, 1911.

CARROLL RALPH FORBES,

Professor of Mining and Secretary of the Faculty.

B. S., Michigan College of Mines, 1902; E. M., Michigan College of Mines, 1903.

VICTOR HUGO GOTTSCHALK,

Professor of Chemistry.

B. S. in Chemistry and Metallurgy, School of Mines, 1898; M. S., School of Mines, 1900.

ELMO GOLIGHTLY HARRIS,

Professor of Civil Engineering.

C. E., University of Virginia, 1882.

FRANK EDWARD DENNIE,

Associate Professor of Athletics and Physical Director.

B. S. in Civil Engineering, Brown University, 1909.

LEON ELLIS GARRETT,

Associate Professor of Mathematics.

B. S. in General Science, School of Mines, 1901.

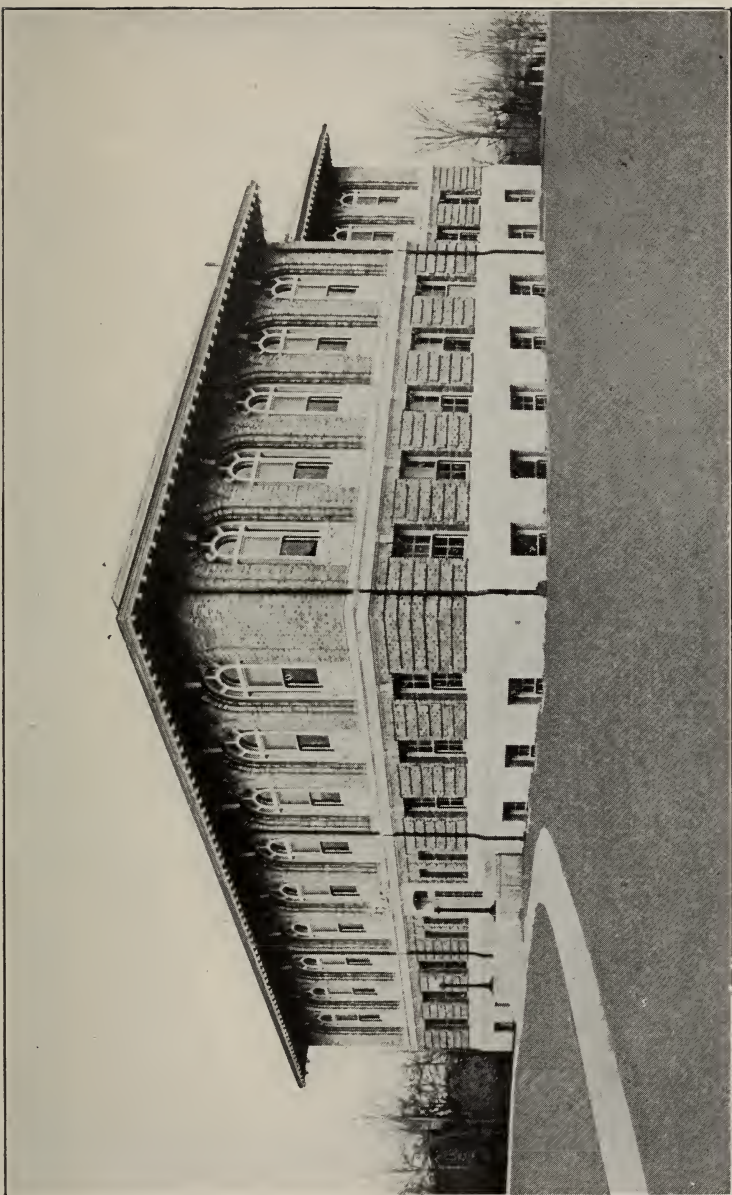
HORACE THARP MANN,

Associate Professor of Metallurgy and Ore Dressing.

B. S. in Mining Engineering, School of Mines, 1908; M. S. in General Science, School of Mines, 1909; E. M., School of Mines, 1910.

- JOSEPH HENRY BOWEN,  
Assistant Professor of Shop Work and Drawing.  
Graduate, Miller School, Virginia.
- CHARLES YANCEY CLAYTON,  
Assistant Professor of Metallurgy and Ore Dressing.  
B. S., School of Mines, 1913; Met. E., School of Mines, 1916.
- CHARLES LAURENCE DAKE,  
Assistant Professor of Geology and Mineralogy.  
A. B., 1911; A. M., 1912; University of Wisconsin.
- FRANCIS POTTER DANIELS,  
Assistant Professor of Modern Languages.  
A. B., University of Michigan, 1895; A. M., University of Missouri, 1897; Ph. D., University of Missouri, 1906.
- JOHN CHARAVELLE INGRAM,  
Assistant Professor of Chemistry.  
B. S. in General Science, School of Mines, 1913.
- EDGAR SCOTT McCANDLISS,  
Assistant Professor of Civil Engineering.  
B. S. in Civil Engineering, Purdue University, 1909.
- HAROLD LESLIE WHEELER,  
Librarian.  
A. B., Brown University, 1910; B. L. S., New York State Library School, 1913.
- HARRY ATWOOD AMBLER,  
Instructor in Chemistry.
- RALPH EARL DUFFY,  
Instructor in Drawing.  
B. S. in E. E., University of Missouri, 1908.
- FLOYD HILL FRAME,  
Instructor in Physics and Electricity.  
A. B., Clark College, 1912.
- LESTER DAVISSON HAMMOND,  
A. B., University of Indiana, 1907; A. M., University of Wisconsin, 1910; Ph. D., University of Wisconsin, 1916.
- VAN BUREN HINSCH,  
Instructor in Mathematics.  
B. S., School of Mines, 1909.
- NEIL CHARLES HUTSINPILLAR,  
Instructor in English.  
B. A., Ohio State University, 1908.
- DONALD CAMPBELL KEMP,  
Instructor in Geology and Mineralogy.  
A. B., University of Colorado, 1915.
- GARRETT A. MUILENBURG,  
Instructor in Geology and Mineralogy.  
A. B., University of Iowa, 1912; M. S., University of Iowa, 1913.
- WILLIAM HARRY RISHER,  
Instructor in Mining and Surveying.  
B. S. in C. E., Purdue University, 1912.
- MARTIN HARMON THORNBERRY,  
Research Assistant.  
B. S., School of Mines, 1912.





PARKER HALL—Library and Auditorium

The School of Mines and Metallurgy is a Department of the University of Missouri. It offers four-year curricula leading to the Bachelor degree, and five-year curricula leading to the Professional degrees.

### ENTRANCE REQUIREMENTS.

Fifteen high school units are required for admission to the Freshman class. Of these, three must be in English, one and a half in Algebra, one in Plane Geometry and one-half in Solid Geometry. The other nine may be selected from any high school units. Conditions may be allowed in not more than two units. These conditions must be removed within one year.

Graduates of approved high schools with the above credits are admitted by certificate without examination.

Those who are not graduates of approved high schools must pass the entrance examination in the above units.

Persons who are twenty-one years of age may be admitted without examination as special students and permitted to study any subject they are qualified to pursue. Special students are not candidates for a degree.

Students with grades from other colleges are admitted to advanced standing.

### DEGREES.

The first degrees were conferred at commencement in June, 1874, when two men received the degree of Civil Engineer, and one man the degree of Mining Engineer. These degrees continued to be conferred upon the completion of the prescribed course of study on all who matriculated before 1889.

In 1889 the Bachelor's degree was offered, and those who entered after that date received a Bachelor of Science degree upon the completion of the prescribed course. The catalogue of 1889-90 offered the following degrees:

#### Scientific Degrees With Titles.

1. The degree of Bachelor of Science in Mathematics and Physics is conferred upon one who has passed examination on all of the subjects of instruction in the Course of Mathematics and Physics.

2. The degree of Bachelor of Science in Chemistry is conferred on one who has passed examination on all of the work of the special Chemical Course.

3. The degree of Bachelor of Science in General Science is conferred on one who has passed examination on all of the prescribed subjects of instruction in the General Course.

### **Professional Degrees With Titles.**

1. The degree of Bachelor of Science in Civil Engineering is conferred on one who has passed examination on all of the subjects of instruction in the Civil Engineering Course.

2. The degree of Bachelor of Science in Mining Engineering is conferred on one who has passed examination on all of the subjects of instruction in the Mining Engineering Course.

3. The degree of Bachelor of Science in Mechanical Engineering is conferred on one who has passed examination on all of the subjects of the Mechanical Engineering Course.

4. The degree of Civil Engineer, Mining Engineer or Mechanical Engineer is conferred on one who, having graduated in Civil, Mining or Mechanical Engineering, and received the Bachelor's Degree therein, and who has identified himself with the profession during a period of not less than three years, and who during that time has demonstrated by work his fitness for his chosen profession.

The catalogue for 1894-5 offered the degree of Bachelor of Science in Chemistry and Metallurgy, and the degree of Metallurgical Engineer for the first time; and the degree of Bachelor of Science in Mechanical Engineering and the degree of Mechanical Engineer were discontinued.

From that time on there was but slight modification in the title of the degrees. The 1915-16 catalogue offered the following degrees:

I. The degree of Bachelor of Science in Mine Engineering will be conferred upon a candidate for a degree who has completed the prescribed work of the first three years of Curriculum I., sixty-two units elective work, and all of the required trips of Curriculum I. The final year's work must be done in residence.

II. The degree of Bachelor of Science in Metallurgy will be conferred upon a candidate for a degree who has completed the prescribed work of the first three years of Curriculum II., sixty-two units elective work, including a thesis, and all of the trips required in Curriculum II. The final year's work must be done in residence.

III. The degree of Bachelor of Science in Civil Engineering will be conferred upon a candidate for a degree

who has completed the required subjects and the prescribed number of electives of Curriculum III., and a satisfactory thesis. The final year's work must be done in residence.

IV. The degree of Bachelor of Science in General Science will be conferred upon a candidate who has completed the prescribed subjects and electives of Curriculum IV., and a satisfactory thesis. Candidates for degrees in General Science must matriculate in the General Science Curriculum not later than the beginning of the Junior year. The final year's work must be done in residence.

V. The degree of Engineer of Mines, Metallurgical Engineer, Civil Engineer, will be conferred upon a candidate who holds the degree of Bachelor of Science in Mine Engineering, Bachelor of Science in Metallurgy, Bachelor of Science in Civil Engineering, respectively, and who has completed in residence fifty-three units and a satisfactory thesis; or upon a graduate in Curriculums I., II., III., respectively, who has had professional experience in a responsible position for not less than three years. A satisfactory thesis recording the result of some original investigation or independent research in a subject connected with his work, accompanied by such drawings as may be necessary to illustrate it, is required of each candidate for an advanced degree.

A candidate for a professional degree is required to submit a list of companies for whom he has worked, with the positions held, the kind of work done, and the length of service.

When a candidate's professional work has been along another line than that in which he received his college training, he may receive the professional degree in that line after five years of practice and by complying with the foregoing statement concerning detailed report of employment and thesis.

Only one professional degree will be allowed for work done *in absentia*.

VI. The degree of Master of Science will be conferred only upon graduates in General Science who have completed a year's graduate work in residence and demonstrated ability by research work and a thesis. Each candidate who is not a graduate of this institution in Curriculum IV. must satisfy the language requirements of Curriculum IV., in addition to completing the graduate requirements. A candidate who is not giving his entire time to graduate study will be unable to earn the degree in one year's residence.



VII. The degree of Engineer of Mines will be conferred upon a candidate who completes Curriculum VII. This is a two-year Curriculum, open to candidates who have received the degree of Bachelor of Science in Civil Engineering, Bachelor of Science in Mechanical Engineering, or Bachelor of Science in Electrical Engineering from another institution.

### **MECHANICAL, ELECTRICAL AND CHEMICAL ENGINEERING DEGREES.**

Curricula leading to the degrees of Bachelor of Science in Mechanical Engineering, Bachelor of Science in Electrical Engineering, and Bachelor of Science in Chemical Engineering were established in September, 1916.

### **SUMMARY OF DEGREES.**

July 6, 1916.

From the table on the next page, it will be seen that from 1874 to 1894, inclusive, 29 degrees Mining Engineer and 30 degrees Civil Engineer were conferred.

From 1894 to 1916, inclusive, 284 degrees Bachelor of Science in Mine Engineering were conferred.

From 1891 to 1907, inclusive, 22 degrees Bachelor of Science in Chemistry and Metallurgy were conferred.

From 1909 to 1916, inclusive, 21 degrees Bachelor of Science in Metallurgy were conferred.

In 1891 one degree Bachelor of Science in Mathematics and Physics was conferred.

From 1893 to 1916, inclusive, 58 degrees Bachelor of Science in Civil Engineering were conferred.

From 1891 to 1916, inclusive, 69 degrees Bachelor of Science in General Science were conferred.

From 1900 to 1916, inclusive, 7 degrees Master of Science were conferred for a year's post-graduate study in residence.

From 1909 to 1916, inclusive, four degrees Engineer of Mines were conferred for a year's post-graduate study in residence.

From 1886 to 1916, inclusive, professional degrees have been conferred upon graduates in responsible positions, as follows:

62 degrees Engineer of Mines,  
16 degrees Metallurgical Engineer,  
8 degrees Civil Engineer.

A total of 611 degrees were conferred on 491 men and 3 women.



## DEGREES

## Conferred by School of Mines and Metallurgy 1874—1919

Year	M.E.	C. E.	B. S. in M.E.	B. S. in C&M	B. S. in Met.	B. S. in M&P	B. S. in C. E.	B. S. in G. S.	S. M.	E. M.	Adv. Deg.			Total
								E. M.			Met. E.	C.E.		
1874	1	2												3
1875	1	1												2
1876	3	2												5
1877	2	1												3
1878	2	2												4
1879	1	1												2
1880	2	0												2
1881	1	2												3
1882	2	5												7
1883	1	1												2
1884	4	3												7
1885	2	1												3
1886	1	2												3
1887	2	2												4
1888	0	0												0
1889	0	0												0
1890	0	1												1
1891	1	0		1		1		1						4
1892	1	2		2				1	1					5
1893	2	0		0				1						4
1894	0	2	1	2				1						6
1895			2	2			3							7
1896			1	0			0				1			2
1897			4	0			3					1		8
1898			1	1			2						1	5
1899			5	3			4	1						13
1900			7	0			0	2	1		1			11
1901			9	1			3	2			1		1	17
1902			10	1			1	1			3			16
1903			11	0			4	0			8	1	1	25
1904			16	2			0	0	1		1			20
1905			22	1			2	0			2		1	28
1906			18	1			4	0			1	1		25
1907			12	5			3	1			1	1		23
1908			20				4	5			5			34
1909			18		1		4	11	1	1	4			40
1910			30		3		3	6	1	1	8	3	1	56
1911			26		3		0	5			4			38
1912			23		3		2	11	1	1	4	2		47
1913			10		4		1	7			1			23
1914			12		2		1	8	1	1	5			30
1915			9		1		3	2			7	3		25
1916			17		4		9	5	1		5	4	3	48
Total	29	30	284	22	21	1	58	69	7	4	62	16	8	611

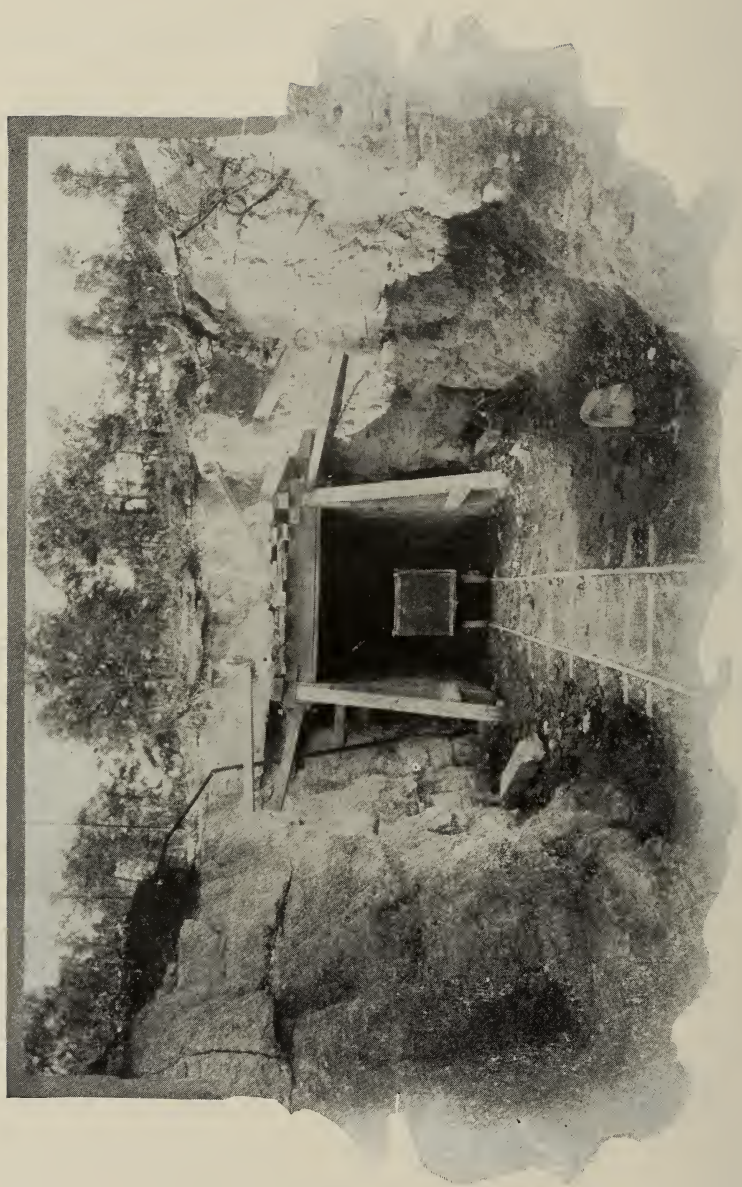
July 6, 1916.

Grand Total.....611

**M. S. M. ENROLLMENT****1892—1916**

1892	Sp.	Fr.	Soph.	Jr.	Sr.	R.	G.	N.	R.	G.	Total	DEGREES		
												Adv.	Deg.	
												B. S. in	Sch. 3	Yrs.
1892											83	2	3	0
1893											116	2	2	0
1894	{ 59													
1895	{ 13	26	10	7	5	1	0	121	4	1	0			
1896	{ 31													
1897	{ 15	17	12	12	8	1	0	96	7	0	0			
1898	{ 20													
1899	{ 14	16	12	8	2	0	0	72	1	0	1			
1900	{ 12													
1901	{ 23	31	20	10	8	0	0	104	7	0	1			
1902	{ 22													
1903	{ 20	28	22	18	4	0	2	117	4	0	1			
1904	{ 14													
1905	{ 28	25	23	17	12	0	7	125	13	0	0			
1906	{ 6													
1907	{ 29	57	41	22	8	2	3	168	9	1	1			
1908	26	63	49	16	15	0	8	177	15	0	2			
1909	22	72	54	20	13	2	9	192	13	0	3			
1910	18	63	53	40	16	0	19	209	15	0	10			
1911	11	62	34	47	32	1	7	194	18	0	2			
1912	23	69	52	24	43	0	13	224	25	0	3			
1913	25	68	39	43	32	0	8	215	23	0	2			
1914	15	79	42	33	33	0	8	210	21	0	2			
1915	21	63	59	49	28	0	9	229	29	0	5			
1916	11	70	51	62	41	5	14	254	34	1	5			
1917	9	45	59	46	54	4	14	231	42	2	12			
1918	6	36	38	53	44	2	9	188	34	0	4			
1919	6	35	29	29	48	3	8	158	39	2	6			
1920	6	96	33	31	29	4	6	205	22	0	1			
1921	11	90	81	31	32	7	11	263	23	1	6			
1922	10	84	69	68	21	12	15	279	15	0	10			
1923	25	68	60	56	50	6	20	284	35	1	12			

NOTE—From 1894 to 1900 the upper number under special students refers to women students.



MINE TUNNEL

## ALUMNI ASSOCIATION

---

### Officers for 1916-17

W. ROWLAND COX .....	<i>President</i>
1803 120 Broadway, New York City.	
RAY F. RUCKER .....	<i>Vice-President</i>
East St. Louis, Illinois.	
CHARLES Y. CLAYTON .....	<i>Secretary</i>
Rolla, Missouri.	

### Advisory Committee

Ralph R. Benedict .....	<i>Kansas City</i>
Evans W. Buskett .....	<i>Joplin</i>
Professor Geo. R. Dean .....	<i>Rolla</i>
Professor L. E. Garrett .....	<i>Rolla</i>
Professor H. T. Mann .....	<i>Rolla</i>
Kurt V. Moll .....	<i>St. Louis</i>

## LIST OF GRADUATES

- Abernathy, George Elmer, B. S., '14.....*Dixon, Mo.*  
Superintendent, Electric Light & Power Plant.
- Adams, Bernard William, B. S., '16.....*Akron, O.*  
Instructor in Physics, University of Akron.
- Adams, Henry Farnum, B. S., '12.....*P. D. Box 1331, Clifton, Ariz.*  
Cost Department on Construction, New Smelter, Arizona Copper Co.
- Albertson, Maurice Merton, B. S., '11, E. M., '15.....*Cobalt, Canada*  
Mining Engineer with A. R. Whitman.
- Alexander, Curtis, E. M., and C. E., '84,  
.....*4508 Terrace Drive, Kensington Park, San Diego, Calif.*
- Alexander, Raphael Currier, B. S., '03; E. M., '06.....*Texhoma, Okla.*  
Real Estate.
- Alexander, Thompson, C. E., '01.....*Ste. Genevieve, Mo.*  
Assistant to Valuation Engineer, Frisco System; Permanent Address, *Box 27, Ft. Smith, Ark.*
- Allen, Ernest James, B. S., '11.....*Hazel Green, Wis.*  
Cleveland Mining Co.
- Ambler, John Owen, B. S., '06.....*P. O. Box 947, Douglas, Ariz.*  
Assistant Superintendent Calumet & Arizona Mining Co.
- Anderson, Hector George Sylvester, B. S., '08; E. M., '12  
.....*Hurley, New Mexico.*  
Assistant to General Manager Chino Copper Co.
- Anderson, Perry Barton, B. S., '97.....
- Andrus, Dexter Eli, B. S., '13.....*66 Scott St., Tucson, Ariz.*  
Hatcher, Carpenter and Andrus.
- Armstrong, Richard Edward, B. S., '08.....*Santa Ana, Calif.*
- Ashdown, Byron Lee, B. S., '16.....*Mechanicsville, New York*  
Engineer with James Stewart & Co., Inc., New York City.
- Baker, Arnold George, B. S., '07.....*P. O. Box 104 Chouteau, Mont.*  
Baker & Ward Irrigation Engineering.
- Baker, Charles Armstrong, B. S., '08.....
- Barker, Ralph, B. S., '98.....*Garfield, Utah*  
Utah Copper Co.
- Barrett, Edward Philip, B. S., '09.....*Salt Lake City, Utah*  
Chemist, U. S. Bureau of Mines.
- Bartlett, Albert Babbitt, B. S., '07; E. M., '10.....*Cheyenne, Wyo.*  
Deputy State Engineer.
- Barton, Robert Arthur, B. S., '06; C. E., '10.....*Vernon, B. C.*  
Resident Engineer, Municipality of Coldstream.
- Baueris, William Albert, B. S., '09.....*824 Vancouver Bk., Vancouver, B. C.*  
Pacific Dredging Co.
- Beach, James Keller, B. S., '11.....*Hotel Bender, Houston, Texas*  
District Manager, Ajax Rubber Co. of New York.
- Bean, William Yantis, C. E., '78.....*510 Pine St., St. Louis, Mo.*  
Inspector and Instructor Grand Commandery Knights Templar of Missouri.
- Beard, John Warren, B. S., '09.....*712 Cortland Ave., Syracuse, N. Y.*
- Bell, Frank Rolla, B. S., '03.....*Bartlesville, Okla.*  
Superintendent, Lanyon-Starr Smelting Co.
- Bedford, Robert Hardy, B. S., '06; E. M., '11.....*Grass Valley, Cal.*  
Assistant Superintendent, North Star Mines.



- Benedict, Ralph Robert, B. S., '08; C. E., '16.....  
 .....3547 *Paseo St., Kansas City, Mo.*  
 Acting Executive Officer, Board of Park Commissioners.
- Benham, Willard Miles, B. S., '15.....*Ray, Ariz.*  
 Ray Consolidated Copper Co.  
 Temporary Address, Co. H, 1st Arizona Infantry, Ft. Huachuca,  
 Arizona.
- Beyer, Emil Lucius, B.S., '16.....*Glassboro, N. J.*  
 Engineering Assistant, James Stewart & Co., New York City
- Bingham, Raymond Alexander, B. S., '11.....  
 .....84 *Park Terrace, W. Orange, N. J.*  
 Cottrel Operator, Balbach Smelting & Refining Co., Newark, N. J.
- Black, James Kennedy, B. S., '04.....*St. Louis, Mo.*
- Blake, Frank Orris, Jr., B. S., '10 .....506 *Gower St., Los Angeles, Cal.*  
 Superintendent and Chemist, Watts and Ammerman, Box 172, Man-  
 hattan, Kansas.
- Blake, True Walter, B. S., '11; E. M., '14 .....*Millsaps, Glenn Co., Cal.*  
 Mining Engineer.
- Bland, George Vest, B. S., '04.....*Hill City, S. Dakota*  
 General Manager, Black Hills Tungsten Production Co.
- Blaylock, Daniel Webster, B. S., '15.....*Harrisburg, Ill.*  
 Division Engineer, Saline County Coal Co.
- Bodman, John Whittlesey, B. S., '10.....*Wistern Springs, Ill.*  
 Assistant Chemical Director, N. K. Fairbanks Co., Chicago, Ill.
- Boland, Earl Frederick, B. S., '10.....109 *Lexington Ave. Syracuse, N. Y.*  
 Chemist, Crucible Steel Company of America.
- Boucher, Leonidas James, B. S., '14.....*Hannibal, Mo.*  
 Assistant to Superintendent, Quarry and Shale Mine, the Atlas Port-  
 land Cement Co.
- Bowles, John Hyer, B. S., '08.....*Lake Springs, Mo.*  
 Farming.
- Bowles, James Joseph, B. S., '10.....*Lake Springs, Mo.*  
 Farming.
- Boyer, Fred Tete, B. S., '09.....2025 *Washington Av., Philadelphia, Pa.*  
 Merchant & Evans Co.
- Boyer, George Hewitt, B. S., '08; E. M., '16.....  
 .....566 *Thirty-second St., Milwaukee, Wis.*  
 Assistant Engineer, Power Plants, Milwaukee Electric Railway &  
 Light Co., Public Service Bldg., Milwaukee.
- Boza, Hector, B. S., '11; E. M., '16.....*Lima, Peru*  
 Mining Engineer.
- Bramson, Charles, B. S., '13.....8011 *Idaho Ave., St. Louis, Mo.*  
 Chemist, Provident Chemical Works.
- Branham, William Grover, B. S., '10.....
- Bribach, Oscar Nicholas, B. S., '12.....*Breckenridge, Colo.*  
 Chemist, Wellington Mines Co.
- Brooks, John McMillen, B. S., '06.....*Chuquicamata, Chile*  
 Chile Exploration Co.
- Brooks, Lyman H., Jr., B. S., '13.....*Kinshasa, Congo Belge, W. Africa*  
 Care C. A. Reid, Babeyru Gold Fields.
- Broughton, Eugene Harding, B. S., '12.....*P. O. Box 918, Warren, Ariz.*  
 Mining Engineer, Copper Queen Cons. Mining Co.
- Brown, Joseph Jarvis, Jr., B. S., '05; E. M., '08.....
- Brown, William Ernest, B. S., '07.....
- Brown, Wilton Rutherford, E. M., '78.....  
 Deceased.
- Buckby, De Nard Wilson, B. S., '01.....*Wallace, Idaho*  
 Mill Superintendent, Stewart Mining Co.

- Bunten, James, B. S., '10.....*Canon City, Colo.*  
City Engineer and County Surveyor.
- Burdick, Charles Adrian, B. S., '10; E. M., '15.....*74 Broadway, New York City, N. Y.*  
Mining Engineer.
- Burg, Robert Stanley, B. S., '16.....*Morenci, Ariz.*
- Burgher, Mark Bernardi, B. S., '06.....*Hannibal, Mo.*  
Engineer and Contractor.
- Buskett, Evans Walker, B. S., '95; M. E., '07.....*620 Joplin St., Joplin, Mo.*  
Buskett's Assay Office.
- Buskett, Mary Page, B. S., '93.....*Seattle Heights, Seattle, Wash.*  
Teacher.
- Butler, Reginald Henry Brinton, B. S., '09; Met. E., '12.....*"Kirbymead" Hermon Hill, S. Woodford, Essex, England*  
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- Callaway, Scott David, B. S., '12.....*Kusa, Okla.*  
Superintendent, Kusa Spelter Co.
- Cameron, John Simpson, B. S., '97.....*McAlester, Okla.*  
General Superintendent, Bache-Denman Coal Co.
- Caples, James Watts, B. S., '05.....*Salmon, Idaho*  
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- Caples, Russell Bigelow, Jr., B. S., '10.....*Box 651, Great Falls, Mont.*  
Assistant Superintendent of Zinc Plant, Anaconda Copper and Mining Co.
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- Carson, Arthur C., E. M., '80.....*800 Bush St., San Francisco, Cal.*  
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Manager and Supervisor, Trinidad Mining Co. Temporary Address, Care Chisos Mining Co., Terlingua, Texas.
- Cavazos, Enrique, B. S., '09.....*2 Allende, 2 1-2, Sattillo, Coah, Mexico*
- Chamberlain, Ernst Lorenz, B. S., '09; C. E., '16.....*Benson, Minn.*  
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- Chamberlain, Harry Carleton, B. S., '05; E. M., '10.....*Gila Bend, Ariz.*  
Cornelia Copper Co.
- Chase, James Howard, B. S., '12.....*Logansport, Ind.*
- Christopher, James Knight, B. S., '05.....*317 Board of Trade Bldg., Kansas City, Mo.*
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Sprague Meter Co.
- Clarke, William Newton, B. S., '09.....
- Clarke, William Danels, B. S., '09.....*Louviers, Colo.*  
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- Clary, John Henry, B. S., '05.....*Maryville, Mo.*
- Claypool, William M., C. E., E. M., '84.....*Needles, Cal.*  
Claypool & Co., General Merchandise.
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- Conrads, Ralph Augustus, B. S., '04.....*Magna Plant, Garfield, Utah*  
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- Conway, Clifford Leroy, B. S., '12.....*Copper Hill, Ariz.*  
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- Dunham, Azmon Thurman, B. S., '16.....*Butte, Mont.*  
Timber Butte Mining Co.
- Dunkin, Damon Duffield, B. S., '04.....*Buck, via Alderson, Okla.*  
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- Elbelt, William Henry, B. S., '12.....*Hurley, N. Mexico*  
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- Elicano, Victoriano, B. S., '09.....*Masinloc, Zambales, P. I.*  
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- Ericson, John Theodore Emmanuel, B. S., '07.....*Sligo, Mo.*  
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Deceased.
- Farrar, Monroe, B. S., '11.....*Mattoon, Ill.*  
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- Fay, Albert Hill, B. S., '02; E. M., '05.....*Washington, D. C.*  
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- Fernandez, Abraham Leonardo, B. S., '00; E. M., '02.....  
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Superintendent, Campania Minera Ignacio Rodriquez Ramos, S. A. C.
- Finagin, Joseph Cooper, Jr., B. S., '14.....*Collinsville, Ill.*  
Chemist, Prime Western Spelter Co.
- Florreich, Philip, B. S., '95.....  
Deceased.
- Flynn, Frank James, B. S., '12; E. M., '12.....*St. Joseph, Mo.*  
Hardware and Plumbing.
- Flynt, Frank LeRoy, B. S., '10.....*Interstate Bldg., Kansas City, Mo.*  
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Tungsten Mill, Homestake Mining Co.
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Assistant Superintendent, Tulsa Fuel & Mfg. Co.
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Prospector.
- Fraser, Keith Colt, B. S., '10.....*Bartlesville, Okla.*  
Assistant Superintendent, Bartlesville Zinc Co.
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- Fulcher, James E., C. E., '86.....*Des Moines, Iowa*  
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- Gallaher, Philip Clark, E. M., '84.....  
Deceased.
- Gammeter, Walter, B. S., '16.....*Bayard, N. Mex.*  
General Manager, Lucky Bill Mine.
- Garcia, John Adrian, B. S., '00; E. M., '03.....  
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Allen & Garcia, Consulting Engineers.
- Garcia German, B. S., '11.....*2 de Marcella No. 16 Mexico, Mexico, D. F.*  
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- Gardiner, William Alexander, B. S., '06.....*El Oro, Mexico*  
Mill Superintendent, Esperanza Mining Co.
- Garrett, Leon Ellis, B. S., '01.....*Rolla, Mo.*  
Associate Professor of Mathematics, Missouri School of Mines.
- Garst, Harvey Oden, B. S., '09.....*Kansas City, Mo.*  
Junior Civil Engineer, Interstate Commerce Commission.
- Garvens, Oscar E., C. E., '75.....*East St. Louis, Ill.*
- Gibb, Frank W., C. E.; E. M., '82.....*Little Rock, Ark.*  
Frank W. Gibb & Co., Architects.
- Gill, John Holt, C. E., '74.....  
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- Greason, John D., E. M., '76.....  
Deceased.
- Green, Cecil Theodore, B. S., '06.....
- Greene, John W., B. S., '13.....*Gregory, Texas*  
Ranchman.
- Greenidge, Samuel Marshall, B. S., '02.....*P. O. Box 364, Douglas, Ariz.*  
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| Colorado Gold Dredging Co.   |   |
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- Lehman, John Ludwig Gustave, B. S., '05.....
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Burro Mountain Copper Co.
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- Loveridge, Frank Richard, B. S., '09.....108 *Nagel Ave., St. Louis, Mo.*  
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- Mapes, Harold Thomas, B. S., '08.....
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- Miller, John Charles, B. S., '16 .....*Kusa, Okla.*  
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- Miller, Julius Charles, B. S., '14.....528 *Sargent St., Joplin, Mo.*  
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- Van Frank, Philip R., E. M., '85.....*Little Rock, Ark.*  
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Engineer, Arkansas Bridge Co.	
Baker, Charles C.	Philipsburg, Mont.
Assistant Superintendent, Phillipsburg Mining Co., also Cashier and Chief Clerk, Granite Bi-Metallic Cons. Mining Co.	
Bilderbach, Alex. S.	Kansas City, Mo.
Tuttle, Ayers and Woodward Engineering Co.	
Bland, John L.	Hill City, S. Dak.
Hill City Tungsten Production Co.	
Boles, Thomas	Ft. Smith, Ark.
Assistant Field Engineer, Interstate Commerce Commission, Karpen Bldg., Chicago, Ill.	
Bowie, Alexander R.	Boxie, Colo.
Mining Engineer.	
Budrow, Lester R.	Esquedra, Sonora, Mex.
General Manager The Tigre Mining Co., via Douglas, Ariz.	
Chamberlain, Louis J.	St. Louis, Mo.
Chemist, Mallinckrodt Chemical Works.	
Chaney, Adrian Byron	Box 334, Haileyville, Okla.
Ballast Inspector, St. L. I. M. & S. Ry., Wynne, Ark.	
Christie, Louis J.	216 E. Fourth St., Anaconda, Mont.
Assayer, Anaconda Copper Mining Co.	
Cole, John T.	Box 103, Tar River, Okla.
Superintendent, McConnell Zinc Co.	
Colley, Hylton, H.	Douglas, Ariz.
Assistant Superintendent of Smelters, Copper Queen.	
Cooke, Grant	4336 Greenview Ave., Chicago, Ill.
Coygn Correspondence School.	
Cowman, Gerard H.	Bellefontaine, Ohio
Superintendent, Magnesite Plant.	
Donnan, David McA.	Pittsburgh, Pa.
President and General Manager, Electric Engineering and Mfg. Co.	
Doyle, John J.	Tulsa, Okla.
Assistant Geologist, Cosden Oil and Gas Co.	
Elayer, Carl S.	Copper Hill, Ariz.
Mine Foreman, Arizona Commercial Mining Co.	
Erskine, Lucian	701 Limit Ave., St. Louis, Mo.
Assistant Chemist, Station B, Laclede Gas Light Co.	
Finley, D. D.	Wellington, Kan.
County Surveyor and Engineer.	
Flynn, Frank N.	Chuquicamata, Chile
General Superintendent, Chile Exploration Co.	
Followill, Dexter B.	Collinsville, Ill.
Superintendent Paint Plant, St. Louis Smelting and Refining Co.	
French, Clifford E.	St. Louis, Mo.
Vice-President, Union National Bank.	
Gallaway, Ralph Arthur	421 E. Sherman St., Hutchinson, Kan.
Assistant Engineer, Solway Process Co.	
Gibson, Thomas Lee	406 Star Bldg., St. Louis, Mo.
Mining Engineer.	
Hackwood, Arthur W.	Butte, Mont.
Butte and Superior Copper Co.	
Hamm, Carl G. C.	Clifton, Ariz.
Chemist, Arizona Copper Co.	

Hammond, Arthur K.....	<i>St. Louis, Mo.</i>
Photographer, The St. Louis Times.	
Harris, Walter Bibb.....	<i>Hutchinson, Kan.</i>
Highway Engineer, Reno County.	
Heinz, C. E.....	<i>Box 357, Webb City, Mo.</i>
Chemist, Kenifick Zinc Co.	
Heydecker, Coral T.....	<i>Waukegan, Ill.</i>
Heydecker and Heydecker, Lawyers.	
Hughes, Richard K.....	<i>Tulsa, Okla.</i>
County Surveyor of Tulsa County.	
County Engineer of Washington County.	
Hummel, Charles M.....	<i>4032 Flad Ave., St. Louis, Mo.</i>
General Manager, Hummel Mfg. Co.	
Iijima, Zentaro.....	<i>Tokyo, Japan</i>
Iijima Transformer Mfg. Works.	
Jamison, Glen.....	<i>Joplin, Mo.</i>
Empire District Electric Co.	
Jobs, Charles Taylor.....	<i>Gila Bend, Ariz.</i>
Chief Engineer, Rowley Copper Mines Co.	
Krickhaus, L. L.....	<i>Newark, N. J.</i>
Chemist, Baker Platinum Co.	
Leavitt, J. E.....	<i>Miami, Ariz.</i>
Assayer, Miami Copper Co.	
McCrae, Charles E.....	<i>Suite 217-18, Glendale Bldg., Kansas City, Mo.</i>
Civil Engineer.	
McKibben, H. B.....	<i>Collinsville, Okla.</i>
Assistant Superintendent, Bartlesville Zinc Co.	
McMillan, W. W.....	<i>Morenci, Ariz.</i>
Chemist, Detroit Copper Co.	
Mitchell, Peter R.....	<i>Bakersfield, Mo.</i>
Cashier, Bank of Bakersfield.	
Mitchell, Ewing Young.....	<i>Springfield, Mo.</i>
Lawyer.	
Moll, Kurt V.....	<i>4445 Laclede Ave., St. Louis, Mo.</i>
Moll Grocer Co.	
Mountjoy, R. L.....	<i>Miami, Ariz.</i>
Assayer, Miami Copper Co.	
Morgan, Karl R.....	<i>703 Cedar Ave., Long Beach, Calif.</i>
Chemist, Southern California Sugar Co., Santa Ana Plant.	
Myers, Claude.....	<i>1230 Shawmut Pl., St. Louis, Mo.</i>
Engineer, Street Dept., City of St. Louis.	
Nason, Stanley R.....	<i>Mineville, N. Y.</i>
Mill Superintendent, Witherbee and Sherman Co.	
O'Neill, Charles H.....	<i>Box 710, Webb City, Mo.</i>
Cashier, Empire District Electric Co.	
Parker, Morris B.....	<i>City National Bank Bldg., El Paso, Tex.</i>
Mining Engineer.	
Pringle, Lewis B.....	<i>Bonne Terre, Mo.</i>
Chemist, St. Joseph Lead Co.	
Schaberg, Benj. F.....	<i>3830 Ashland Ave., St. Louis, Mo.</i>
Draftsman, Sewer Department, City Hall.	
Schnitzer, John L.....	<i>Hannibal, Mo.</i>
Chemist, Atlas Portland Cement Co.	
Seamon, Wm. H., Jr.....	<i>El Paso, Tex.</i>
Assistant General Manager, John S. Qualey & Co.	
Southgate, John M.....	<i>Rolla, Mo.</i>
County Surveyor, Phelps Co.	
Taylor, Willard P.....	<i>110 E. Ninth St., Joplin, Mo.</i>
Proprietor, Taylor's Assay Office.	



Thomas, Marion Lee.....	71 Broadway, New York City
Mining Engineer.	
Thomas, Thomas Rae.....	Dearing, Kan.
American Zinc Co.	
Treuting, Frank L.....	732 Elm St., New Haven, Conn.
Engineer, Southern New England Telephone Co.	
Valerius, M. M.....	328 Mayo Bldg., Tulsa, Okla.
Valerius, McNutt and Hughes, Mining Geologists.	
Walton, R. R.....	Higbee, Mo.
Mine Foreman and Engineer, Walton Coal Co.	
Weissgerber, Otto.....	Lebanon, Mo.
President, Farmers' and Merchants' Bank.	
Whiteley, H. E.....	Kansas City, Mo.
Assayer, U. S. Custom House.	
Work, D. W.....	Rancagua, Chile
Braden Copper Co.	
Young, John T.....	Stoddard, Ariz.
Shift Boss, Stoddard Mines Co.	

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Thornhill, E. B.

Truex, A. F.  
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Valerius, M. M.  
Vogel, H. H.  
Wander, E.  
Wash, E. R.  
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Wishon, A. E.  
Wishon, W. W.  
Woods, C.  
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## GEOGRAPHICAL LIST

## ALABAMA.

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 Benham, W. M.....*Fort Huachua*  
 Broughton, E. H.....*Warren*  
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 Burg, R. S.....*Morenci*  
 Chamberlain, H. C.....*Gila Bend*  
 Cody, B. H.....*Clifton*  
 Colley, H. H.....*Douglas*  
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 Cowperthwaite, T.....*Warren*  
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 Engelman, E. W.....*Hayden*  
 Forrester, D. L.....*Morenci*  
 Fraizer, I. P.....*Elgin*  
 Greenidge, S. M.....*Douglas*  
 Hall, W. S.....*Miami*  
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 Hatchett, R. H.....*Clifton*  
 Head, J. L.....*Warren*  
 Jobs, C. T.....*Gila Bend*  
 Johnson, G. E.....*Morenci*  
 Jones, E. E.....*Miami*  
 Leavitt, J. E.....*Miami*  
 McBride, R. N.....*Miami*  
 McCrae, R. F.....*Hayden*  
 McMillan, W. W.....*Morenci*  
 Mountjoy, R. L.....*Miami*  
 Murphy, J. A.....*Copper Hill*  
 Perkins, F. H.....*Glendale*  
 Porri, Wm.....*Morenci*  
 Schroeder, J. S.....*Morenci*  
 Shotwell, J. W.....*Morenci*  
 Ude, G. E.....*Morenci*  
 Webster, J. N.....*Miami*

## ARKANSAS.

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 Chaney, A. B.....*Wynne*  
 Gibb, F. W.....*Little Rock*  
 Van Frank, P. R.....*Little Rock*

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 Armstrong, R. E.....*Santa Ana*  
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 Blake, F. O., Jr.....*Los Angeles*

Blake, T. W.....*Millsaps*  
 Carson, A. C.....*San Francisco*  
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 Coaske, P. E.....*Sacramento*  
 Thomas, W. S.....*Redding*  
 Hanley, H. R.....*Kennett*  
 Jackling, D. C.....*San Francisco*  
 Keelyn, J. L.....*Bloomington*  
 Lynton, E. D.....*Kennett*  
 McGoughran, J. E.....*Keeler*  
 Macomber, S. C.....*Tipton*  
 Morgan, K. R.....*Long Beach*  
 Pack, J. W.....*San Francisco*  
 Prugh, J. I.....*Sacramento*  
 Rice, J. T.....*Imperial*  
 Spengler, Albert.....*San Francisco*  
 Thomas, A. A., Jr.....*Los Angeles*  
 Thomas, W. S.....*Redding*  
 Traughber, C. W.....*Angiola*  
 Winters, C. F.....*Los Angeles*  
 Wishon, A. E.....*Fresno*  
 Woods, Clarence.....*Washington*

## COLORADO.

Bowie, Alex R.....*Bowie*  
 Bribach, O. N.....*Breckenridge*  
 Bunten, James.....*Canon City*  
 Clark, W. D.....*Louviers*  
 Foster, L. J.....*Montrose*  
 Harland, J. D.....*Leadville*  
 Kayser, E. A.....*Gilman*  
 Minor, C. E.....*Bonanza*  
 Nye, A. L.....*Sterling*  
 Price, J. M.....*Hesperus*  
 Randolph, O. A.....*Boulder*  
 Richards, W. C.....*Grand Valley*  
 Ross, Beauregard.....*Denver*  
 Soest, W. E.....*Colorado City*  
 Smith, L. X.....*Victor*  
 Wilfley, L. X.....*Ouray*

## CONNECTICUT.

Clark, J. C.....*Bridgeport*  
 Treuting, F. L.....*New Haven*

## FLORIDA.

Harper, F. W.....*Ft. Lauderdale*  
 Ohnsorg, N. L.....*Nichols*

## GEORGIA.

Snyder, B. J.....*Dahlonega*  
 Van Devander, H. N.....*Cedartown*



## IDAHO.

Buckby, D. W.	Wallace
Caples, J. W.	Salmon
Moore, S. R.	Wallace
Murray, E. P.	Sikes
Pack, J. A.	De Lemar
Quinn, M. V.	Quartzburg
Sandford, J. J.	Kellogg

## ILLINOIS.

Blaylock, D. W.	Harrisburg
Bodman, J. W.	Wistern Springss
Clark, H. H.	Chicago
Conover, C. C.	Springfield
Cooke, J.	Chicago
Copeland, R. N.	Galena
Cronk, A. H.	Rosiclare
Damotte, E. V.	Granite City
Detweiler, A. N.	Springfield
Detweiler, M. H.	Canton
De Waters, R. H.	Argo
Farrar, Munroe.	Mattoon
Followill, D. B.	Collinsville
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Gottschalk, V. H.	Chicago
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Hynes, D. P.	Chicago
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Lyman, G. E.	Edwardsville
McNely, E. J.	Alton
Mix, W. B.	Edwardsville
Neal, O. D.	East St. Louis
Pickering, J. L., Jr.	Springfield
Rogers, H. F.	Joliet
Rucker, R. F.	East St. Louis
Schuman, J. M.	Chicago
Smith, C. D.	Jacksonville
Terrell, A. D.	Chicago
Vitt, J. T.	Danville
Wander, Ernest.	East St. Louis

## INDIANA.

Chase, J. H.	Logansport
Maveety, R. H.	Gary
Wash, E. R.	Mitchell

## IOWA.

De Lay, T. S.	Creston
Fulcher, J. E.	Des Moines
Hoppock, L. H.	Creston
Kirkham, J. E.	Ames
McCague, T. P.	Eldora
Maher, J. R.	Eldora
Morris, E. R.	Oelkwein

Rex, H. N.	Creston
Shanks, J. D.	Ottumwa
Wyman, W. C.	Ottumwa

## KANSAS.

Emerson, Cyrus.	Waverly
Fowler, J. C.	Holton
Finley, D. D.	Wellington
Fowler, J. D.	Holton
Galloway, R. A.	Hutchinson
Harris, W. B.	Hutchinson
List, Elmer.	La Harpe
McElroy, William.	Fort Scott
Thomas, T. R.	Dearing
Townsend, F. E.	Kansas City

## MASSACHUSETTS.

Dean, R. S.	Cambridge
Wilson, F. W.	Hanover

## MICHIGAN.

Dowd, J. J.	Houghton
Sprague, R. E.	Detroit

## MINNESOTA.

Chamberlain, E. L.	Benson
Hielscher, J. A.	Mankato
Pickles, J. L.	Duluth

## MISSOURI.

BEVIER—	
Rogers, J. A.	
BAKERSFIELD—	
Mitchel, P. R.	
BONNE TERRE—	
Delano, L. A.	
Pringle, L. B.	
Tayman, W. A.	
CARROLLTON—	
Painter, W. R.	
CARTERVILLE—	
Wilson, H. M.	
CAPE GIRARDEAU—	
Sailer, E. L.	
CLAYTON—	
Stevens, J. V.	
COLUMBIA—	
Cody, F. W.	
DESLOGE—	
Steinmesch, J. H.	
DE SOTO—	
Karte, A. F.	
DIXON—	
Abernathy, G. E.	
FLAT RIVER—	
Cummings, L. M.	
Elliot, Wm.	
GRANBY—	
McCartney, W. H.	
Underwood, J. R.	

## HANNIBAL—

Boucher, J. L.  
 Burgher, M. B.  
 Hoffman, R. E.  
 Koch, H. E.  
 Metz, G. F.  
 Schnitzer, J. L.

## HERCULANEUM—

Lindau, S. P.  
 Rolufs, R. T.

## HIGBEE—

Walton, R. R.

## HOUSTON—

Tweed, W. J.

## JEFFERSON CITY—

Millard, Sallie E. (Mrs. Cornelius Roach)

## JOPLIN—

Buskett, E. W.  
 Dwyer, E. P.  
 Gregory, Clay  
 Halsey, H. G.  
 Hartzell, Henry  
 Jameson, G.  
 Miller, J. C., Jr.  
 Perkins, E. T.  
 Taylor, W. P.  
 Watkins, J. C.  
 Weissbach, W. W.

## KANSAS CITY—

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 Benedict, R. R.  
 Bilderbach, A. S.  
 Christopher, J. K.  
 Flynt, F. L.  
 Garst, H. O.  
 Ham, R. C.  
 Hatch, W. P.  
 Kersting, F. J.  
 McCrae, C. E.  
 Needles, E. R.  
 Pierce, C. A.  
 Porth, H. W. L.  
 Spencer, C. B.

## KEYTESVILLE—

Cowles, F. R

## LAKE SPRINGS—

Bowles, J. H.  
 Bowles, J. J.

## LEADWOOD—

Murphy, B. F.  
 Wager, W. H.

## MARYVILLE—

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## OSBORN—

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## PERRYVILLE—

Killian, R. D.

## PLATTSBURG—

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 Copeland, Durward  
 Cox, G. H.  
 Dean, G. R.  
 Dyer, T. E.  
 Garrett, L. E.  
 Gottschalk, V. H.  
 Hinsch, V. B.  
 Ingram, J. C.  
 Mann, H. T.  
 Powell, F. B.  
 Scott, J. B.  
 Southgate, J. M.  
 Thornberry, M. H.

## SAINT FRANCOIS—

Lumaghi, O. L.

## SAINTE GENEVIEVE—

Alexander, Thompson

## SAINT JAMES—

Powell, W. H.

## SAINT JOSEPH—

Flynn, F. J.  
 Logan, L. S.

## SAINT LOUIS—

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 Bramson, Chas.  
 Chamberlain, L. J.  
 Cummins, R. P.  
 Daily, C. M.  
 Davis, Floyd  
 Dean, G. W.  
 Erskine, Greene  
 Erskine, Lucian  
 French, C. L.  
 French, C. E.  
 Griffith, W. T.  
 Grotts, F.  
 Guntley, E. A.  
 Hammond, A. K.  
 Hummel, C. M.  
 Long, J. C.  
 Loveridge, F. R.  
 McCarthy, J. H., Jr.  
 Moll, K. V.  
 Moore, P. A.  
 Mortland, E. A.  
 Myers, Claude  
 Nachtmann, F. X.  
 Ohman-Dumesnil, A. H.  
 Philippi, P. A.  
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 Sheldon, W. E.

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WEBB CITY—	
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## MONTANA

Baker, A. G.	Chouteau
Baker, C. C.	Phillipsburg
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Draper, J. C.	Victor
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Hackwood, A. W.	Butte
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Johnsen, H. A.	Millers
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Minger, W. C.	Hazen
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Elbelt, W. H.	Hurley
Gammeter, W.	Bayard
Illinski, A. X.	Socorro
Jones, F. A.	Socorro
Koeberlin, F. R.	Silver City
Lodwick, Lewellyn.	Tyrone
Phillips, W. I.	Hurley
Stauber, I. J. H.	Pinos Altos
Thompson, R. C.	Hurley
Wright, Ira L.	Hurley

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Boland, E. F.	Syracuse
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Cox, W. R.	New York
Mazany, M. S.	New York
Nason, S. L.	Mineville
Peterson, H. K.	New Rochelle
Pollard, A. L.	Batavia
Thomas, M. L.	New York

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Griffin, R. W.	Cleveland
Sedivy, Miles.	Cleveland

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Doyle, J. J.	Tulsa
Dunkin, D. D.	Buck
Finagin, J. C., Jr.	Collinsville
Forman, J. K.	Collinsville
Fraser, K. C.	Bartlesville
Gill, W. H.	Bartlesville
Grine, H. A.	Collinsville
Hauenstein, F.	Ft. Towson
Hirdler, E. E. (Mrs. F. C. Greene)	Tulsa
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Holmes, O. W.	Dexar
Hughes, V. H.	Tulsa
Irwin, J. S.	Tulsa
Johnson, E. M.	Henryetta
Johnson, R. W.	Wilburton
Kaplan, A. L.	Collinsville
Kiskaddon, W. W.	Tulsa

McKibben, H. B.....*Collinsville*  
 McNutt, V. H.....*Claremore*  
 Miller, John Chas.....*Kusa*  
 Michael, P. F.....*Tulsa*  
 Radcliffe, D. H.....*Tulsa*  
 Reid, J. C.....*McAlester*  
 Seltzer, A. J.....*Blackwell*  
 Tyrrell, F. L.....*Nowata*  
 Valerius, M. M.....*Tulsa*  
 Weidner, F. H.....*Collinsville*

## OREGON

Compton, J. C.....*Portland*  
 Coover, L. L.....*Rye Valley*  
 Steward, A. J.....*Cottage Grove*

## PENNSYLVANIA

Boyer, F. T.....*Philadelphia*  
 Bryant, A. D.....*Palmerton*  
 Casanovas, J. R.....*Pittsburgh*  
 Dudley, Boyd, Jr.....*State College*  
 Dunn, T. S.....*Pittsburgh*  
 Ehlers, Wm., Jr.....*Easton*  
 Peterson, C. E.....*Palmerton*  
 Smith, H. E.....*Pittsburgh*  
 Summers, E. B.....*Pittsburgh*  
 Taylor, J. M.....*Philadelphia*  
 Tompson, R. C.....*Warren*  
 Weigel, W. M.....*State College*

## SOUTH DAKOTA

Bland, G. V.....*Hill City*  
 Bland, J. L.....*Hill City*  
 Ford, H. P.....*Lead*  
 Hoffmann, J. S.....*Hill City*  
 Mackey, R. W.....*Lead*  
 Simrall, R. M.....*Hill City*

## TENNESSEE

Knapenberger, Ralph.....*Mascot*  
 Luther, W. A.....*Chattanooga*  
 Naylor, A. W.....*Jackson*  
 Schultz, J. E.....*Knoxville*  
 Trent, A. L.....*Isabella*  
 Vogel, H. H.....*Mascot*

## TEXAS

Beach, J. K.....*Houston*  
 Eardley, A. E.....*Carrizo Springs*  
 Fowler, J. D.....*Dallas*  
 Greene, J. W.....*Gregory*  
 Gregory, J. A.....*Houston*  
 Hurtgen, John.....*Galveston*  
 Katz, H. M.....*Laredo*  
 Minor, H. E.....*Houston*  
 Norton, B. N.....*El Paso*  
 Parker, M. B.....*El Paso*  
 Seamon, F. H.....*El Paso*  
 Seamon, W. H.....*El Paso*

Walker, J. E.....*El Paso*

## UTAH

Adams, C. W., Jr.....*Murray*  
 Barker, Ralph.....*Garfield*  
 Barrett, E. P.....*Salt Lake City*  
 Carnahan, T. S.....*Bingham*  
 Conrads, R. A.....*Garfield*  
 Hand, H. A.....*Salt Lake City*  
 Miller, C. R.....*Bingham Canyon*  
 Moses, F. G.....*Salt Lake City*  
 Stroup, T. A.....*Salt Lake City*  
 Wagstaff, R. A.....*Garfield*

## VIRGINIA

Neustaedter, A.....*Mineral*  
 Neustaedter, H. A.....*Mineral*  
 Riede, F. E.....*Austinville*

## WASHINGTON

Buskett, Mary P.....*Seattle*  
 Taylor, H. J.....*Seattle*

## WISCONSIN

Allen, E. J.....*Hazel Green*  
 Boyer, G. H.....*Milwaukee*  
 Deutman, E. G.....*Platteville*  
 Elmore, C. E.....*Hazel Green*  
 Hayes, D. L.....*Benton*  
 Roesler, H. A.....*Platteville*  
 Sherry, H. K.....*Platteville*

## WYOMING

Nowlan, H. H.....*Casper*

## WASHINGTON, D. C.

Fay, A. H.  
 Goldsborough, T. R.  
 Grabill, L. R.  
 McGrath, J. E.

## ALASKA

Kline, D. M.....*Thane*

## PHILIPPINE ISLANDS

Elicano, V.....*Malsinloc, Zambales*

## CUBA

Webster, R. S.....*Havana*

## CANADA

Albertson, M. M.....*Cobalt, Ontario*  
 Barton, R. A.....*Vernon, B. C.*  
 Baueris, W. A.....*Vancouver, B. C.*  
 Dye, R. E.....*Cobalt, Ontario*  
 Gold, C. B.....*Sandor, B. C.*  
 Grether, W. S.....*Salmo, B. C.*  
 Sickley, R. G.....*Cobalt, Ontario*  
 Smith, V. H.....*Princeton, B. C.*  
 Thornhill, E. B.....*Cobalt, Ontario*  
 Walker, J. P.....*Kingston, Ontario*

## MEXICO

Castillon, Tirs.....*Mexico, D. F.*  
 Cavazos, Enrique.....*Saltillo, Coah*



Fernandez, A. L.....*Jimenez, Chih.*  
 Garcia, German.....*Mexico, D. F.*  
 Gardiner, W. A.....*El Oro*  
 Rogers, J. A.....  
       .....*Santa Cruz de Alaya, Sinoloa*

## NICARAUGUA

Smith, E. M.....*Bluefields*

## SOUTH AMERICA

Boza, Hector.....*Lima, Peru*  
 Brooks, J. M., Jr.....  
       .....*Chuquicamata, Chile*  
 Cook, P. R.....*Guayaquil, Ecuador*  
 Diaz, Emilio.....*Llallagua, Bolivia*  
 Easley, G. A.....*La Paz, Bolivia*  
 Flynn, F. N.....*Chuquicamata, Chile*  
 Gormly, S. J.....*Guayacan, Chile*  
 Grosberg, A.....*Unica, Bolivia*  
 Jachamowitz, Simon.....*Lima, Peru*  
 Robson-C., Thos.....*Potosi, Bolivia*  
 Work, D. W.....*Rancagua, Chile*

## ENGLAND

Butler, R. H. B.....  
       .....*S. Woodford, Essex*

## RUSSIA

Stewart, J. S., Jr.....  
       .....*Eskibastus, Siberia*  
 Zirulick, Hyman.....*Minsk*

## CHINA

Tseung, T. C.....  
       .....*Yunnanfu, Yunnan Prov.*

## INDIA

Raj, Shiv.....*Tehri, Garhwah*

## AFRICA

Brocks, L. H.....  
       .....*Kinshasa, Congo Belge*  
 Hopkins, James.....  
       .....*Kinshasa, Congo Belge*  
 Horner, P. K.....  
       .....*Katango, Congo Free State*

## JAPAN

Iijima, Z.....*Tokyo*

## In Memorium

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Askew, Walter Howard, '18

Killed in an automobile accident in St. Louis November 20, 1915.

Dunavan, Harry Dallas, ex. '17

Died in Phoenix, Ariz., October 21, 1916.

Fach, Charles Albert, '00

Died in St. Louis ———, 1916, from injuries received in a collision between his automobile and a street car.

Hare, Almon W., '75.

Died at his home in Aspen, Colo., October 17, 1916.

Hase, Herman Carl, '08

Murdered near Cusiuhirichic, Chih. Mex., January 10, 1916.

Heck, Elmer Cooper, '05

Killed in an automobile accident March 5, 1916, at Clifton, Ariz.

Hoyle, George, ex. '05

Died in Washington, D. C., November, 1915.

Lyneman, Felix Anthony, '08

Accidentally killed in the shaft of the Linda Ventura Mine, Wawa district, Nicaragua, May, 1916.

McHugh, P. A., ex. '86

Killed himself April 11, 1916, at Conneautville, Pa.

Stolicker, Edmund Otis, '14

Died November 5, 1916, at Henryetta, Okla., after a two weeks' illness of malarial fever.

Wilson, Fremont, '85

Killed September 15, 1916, at Marion, Ind., when an inter-urban train struck his automobile.

Woodhall, George, Jr., '91

Killed by live electric wire November, 1916, at the Utah Copper Company's plant, Salt Lake City, Utah.

Worley, James Albert, Jr., '17

Died October 22, 1916, at his home in San Antonio, Tex.





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